

ABSTRACT

A practical and useful dual-element, or dual-cone, loudspeaker realizes a high efficiency of operation. Two preferably identical loudspeakers are placed back-to-back with their frontward openings facing in opposite directions, having no acoustical or mechanical connection between their movements. In the preferred embodiment, the back-to-back voice coils share a common permanent magnet. The back-to-back speaker assembly is mounted into a fixture in the center of two opposing horns, each containing an approximately 90-degree bend, approximately in the center of their lengths. The horns are acoustically independent and have approximately co-planar openings (as a result of the 90-degree corners) that project acoustical energy toward the same target. A distinct advantage due to the efficiency realized from this loudspeaker is a typical acoustical power gain of 11 dB with this approach vs. conventional speaker horn constructions. This power gain results in lower amplifier output power level requirements, hence reduced circuit costs and extended battery life in portable products.